

C. AIR QUALITY

This section has been prepared using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).¹ In keeping with these guidelines, this chapter addresses existing air quality impacts of future traffic on local carbon monoxide levels; and potential impacts related to odor and toxic air contaminants; construction period dust and vehicular emissions; and impacts of land use related vehicular emissions that have regional effects. Mitigation measures to reduce or eliminate potentially significant air quality impacts are identified, where appropriate.

1. Setting

a. Air Pollution Climatology. The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sunshine.

Northwesterly and northerly winds are most common in the project area, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula toward San Jose, particularly during the summer months. Winds are lightest on the average in fall and winter at which time local pollutants tend to build up in the atmosphere.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of both the morning and afternoon hours. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The South Bay has significant terrain features that affect air quality. The Santa Cruz Mountains and Diablo Range on either side of the South Bay restrict horizontal dilution, and this alignment of the terrain also channels winds from the north to south, carrying air pollution from the northern Peninsula toward San Jose.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution, and terrain that restricts horizontal dilution give San Jose a relatively high atmospheric potential for air pollution compared to other parts of the San Francisco Bay Air Basin.

b. Ambient Air Quality Standards. Both the U.S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents.

¹ Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines*.

The federal and State ambient air quality standards are summarized in Table V.C-1 for important pollutants. The federal and State ambient standards were developed independently with differing purposes and methods, although both processes aim to prevent health-related effects. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent. This is particularly true for ozone and PM₁₀.

The U.S. Environmental Protection Agency established new national air quality standards for ground-level ozone and for fine particulate matter in 1997. The existing 1-hour ozone standard of 0.12 ppm microns or less is to be phased out and replaced by an 8-hour standard of 0.08 ppm. Implementation of the 8-hour standard was delayed by litigation, but was determined to be valid and enforceable by the U.S. Supreme Court in a decision issued in February of 2001. However, the new federal ozone standard is not yet in effect pending final resolution of this litigation and adoption of implementing regulations.

In 1997 new national standards for fine Particulate Matter (diameter 2.5 microns or less) were adopted for 24-hour and annual averaging periods. The current PM₁₀ standards were to be retained, but the method and form for determining compliance with the standards were to be revised. Implementation of this standard was delayed by litigation and will not occur until the U.S. Environmental Protection Agency has issued court-approved guidance.

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants.

c. Current Air Quality. The BAAQMD monitors air quality at several locations within the San Francisco Bay Air Basin. The closest multi-pollutant monitoring site to the project area is located in Downtown San Jose on 4th Street. Table V.C-2 summarizes exceedances of State and federal standards at this monitoring site during the period 2000-2002. Table V.C-2 shows that ozone and PM₁₀ exceed the State standards in the South Bay. Violations of the carbon monoxide standards had been recorded for the Downtown San Jose area prior to 1992.

Of the three pollutants known to occasionally exceed the State and federal standards in the project area, two (ozone and PM₁₀) are considered regional pollutants in that concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Thus, the data shown in Table V.C-2 for ozone and PM₁₀ provide a good characterization of levels of these pollutants on the project area.

Table V.C-1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 ppm	0.09 ppm
	8-Hour	0.08 ppm	–
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	–
	1-Hour	–	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	–
	24-Hour	0.14 ppm	0.05 ppm
	1-Hour	–	0.25 ppm
PM ₁₀	Annual	50 µg/m ³	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	65 µg/m ³	–

Notes: ppm = parts per million

µg/m³ = micrograms per cubic meter

Source: California Air Resources Board, 2003, *Ambient Air Quality Standards*.

Carbon monoxide is a local pollutant (i.e., high concentrations are normally only found very near sources). The major source of carbon monoxide—a colorless, odorless, poisonous gas—is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

d. Attainment Status. The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the State where the federal or State ambient air quality standards are not met as “nonattainment areas”. Because of the differences between the national and State standards, the designation of nonattainment areas is different under the federal and State legislation.

Table V.C-2: Summary of Air Quality Data for Downtown San Jose

Pollutant	Standard	Days Exceeding Standard in:		
		2000	2001	2002
Ozone	Federal 1-Hour	0	0	0
Ozone	State 1-Hour	0	2	0
Ozone	Federal 8-Hour	0	0	0
Carbon Monoxide	State/Federal 8-Hour	0	0	0
Nitrogen Dioxide	State 1-Hour	0	0	0
PM ₁₀	Federal 24-Hour	0	0	0
PM ₁₀	State 24-Hour	7	4	0
PM _{2.5}	Federal 24-Hour	0	0	0

Source: California Air Resources Board, Aerometric Data Analysis and Management System (ADAM), 2003.

The Bay Area has attained all federal standards with the exception of ozone. In June of 1998 the U.S. Environmental Protection Agency reclassified the Bay Area from “maintenance area” to nonattainment for ozone based on violations of the federal standards at several locations in the air basin. This reversed the air basin’s reclassification to “maintenance area” for ozone in 1995. Reclassification required an update to the region’s federal air quality plan.

Under the California Clean Air Act, Santa Clara County is a nonattainment area for ozone and PM₁₀. The county is either attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of “all feasible measures on an expeditious schedule”.

e. Sensitive Receptors and Toxic Air Contaminant Sources. The BAAQMD defines sensitive receptors as facilities where sensitive population groups (children, elderly, acutely and/or chronically ill) are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. Sensitive receptors in virtually all of these categories can be found within or adjacent to the Greater Downtown area.

The latest inventory of major toxic air contaminant sources prepared by the BAAQMD² shows one source in the vicinity of the proposed project area: contamination related to Perchloroethylene³ at 170 South Market Street (The Fairmont Hotel).

f. San Jose General Plan Policies. Three key General Plan policies specifically address air quality.

² Bay Area Air Quality Management District, 2001, *Toxic Air Contaminant Control Program Annual Report 2000*.

³ A perhalogenated chlorocarbon solvent used extensively in industrial degreasing and in dry cleaning.

- Air Quality Policy 1: The City should take into consideration the cumulative air quality impacts from proposed developments and should establish and enforce appropriate land uses and regulations to reduce air pollution consistent with the region's Clean Air Plan and State law.
- Air Quality Policy 2: Expansion and improvement of public transportation services and facilities should be promoted, where appropriate, to both encourage energy conservation and reduce air pollution.
- Air Quality Policy 5: In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit station should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

2. Impacts and Mitigation Measures

The project would affect air quality both during construction and operation. Operational impacts would be mainly indirect (related to attracted vehicle trips). The project would also result in diversion of traffic on a changed roadway network, which would affect air quality locally.

a. **Criteria of Significance.** The document *BAAQMD CEQA Guidelines*⁴ provides the following definitions of a significant air quality impact:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Expose sensitive receptors or the general public to substantial levels of toxic air contaminants.

The BAAQMD significance threshold for construction dust impact is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM₁₀. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

b. **Less-Than-Significant Impacts.** Four less-than-significant impacts are discussed below.

(1) **Carbon Monoxide Effects of Traffic.** Traffic generated by new development would emit carbon monoxide (CO), the pollutant of greatest interest at the localized level. Concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. The CALINE-4 computer simulation model was used to evaluate ten intersections near the project area. These intersections were selected on the basis of their projected PM peak hour Level of Service (with those intersections expected to experience the greatest levels of congestion selected for analysis).

⁴ Bay Area Air Quality Management District, 1999, *BAAQMD CEQA Guidelines*.

The results of the CALINE-4 modeling for the ten selected intersections are shown in Table V.C-3. Concentrations are shown for the existing (2003) traffic and future (2020) traffic.

Comparing the projected 1-hour CO concentrations in Table V.C-3 to the State and federal ambient 1-hour standards of 20 ppm and 35 ppm, respectively, and the 8-hour concentrations to the State and federal 8-hour standards of 9 ppm, shows that existing concentrations are well below the standards. Despite increasing traffic, concentrations in 2020 would be equal to or lower than existing concentrations, due to gradual reductions in emission rates for vehicles resulting from State-mandated emission control programs. Concentrations in 2020 would remain well below the applicable standards. The impact of the proposed project on local CO concentrations would therefore be less than significant.

(2) Odor Impacts. Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency and intensity of the source; wind speed and direction; and sensitivity of receptors. Odor impacts should be evaluated for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between a receptor and the source to an acceptable level will mitigate odor impacts. No new stationary odor sources are proposed as part of the proposed project. In the event that eventual development projects arising out of *Strategy 2000* were to involve land uses that emit odors, a number of existing City of San Jose, BAAQMD, and State regulations would ensure that no significant impacts would result.

(3) Toxic Air Contaminants. Implementation of *Strategy 2000* would not result in any new sources of toxic air contaminants and the project land uses would not be located near any existing major sources of such contaminants. In the event that eventual development projects arising out of *Strategy 2000* were to emit toxic air contaminants, existing City of San Jose, BAAQMD, and State regulations would ensure that no significant impacts would result.

(4) Local Plan Consistency. The population in the City of San Jose is expected to grow from 923,600 people under the existing condition (2003) to 1,096,200 people in year 2025. The projected growth is 172,650 people over a 22-year period. This amounts to approximately a 0.8 percent annual growth rate.

Figure 3 on page 6 of the Bay Area 2000 CAP depicts the growth in population, vehicles, and vehicle miles traveled in the Bay Area. This figure shows that VMT growth (80 percent growth from 1980 to 2006, or approximately 2.3 percent a year) outpaced population growth (40 percent growth from 1980 to 2006, or approximately 1.3 percent a year) in the Bay Area. Although there is no comparable figure to show such growth for the City of San Jose, it is assumed that the City generally falls within such growth rates.

The proposed project will add up to 10,000 residential units to the City. Based on the 2.92 persons/household average for the County of Santa Clara, the proposed project will increase the City's population by approximately 29,200 people. This represents a 3.2 percent increase in the current population. When added to the 1,096,200 people projected for 2025, the City is projected to grow at a rate

Table V.C-3: Worst-Case Carbon Monoxide Concentrations near Selected Intersections^a

Intersection	Existing (2003)		Future (2020)	
	1-Hr	8-Hr	1-Hr	8-Hr
SR 87 and Julian Street	9.9	6.8	8.5	5.8
US-101 and Oakland Road	10.2	7.0	8.4	5.7
Montgomery Street and Santa Clara Street	9.7	6.6	8.4	5.7
Almaden Avenue and Virginia Street	8.1	5.5	8.0	5.4
11 th Street and Taylor Street	9.0	6.1	8.1	5.5
11 th Street and Julian Street	8.3	5.6	8.2	5.6
11 th Street and Saint James Street	8.5	5.8	8.3	5.6
1 st Street and Taylor Street	9.7	6.6	8.1	5.5
Market Street and Julian Street	9.7	6.6	8.5	5.8
3 rd Street and Julian Street	8.3	5.6	8.2	5.6
Most Stringent Standard	20.0^b	9.0	20.0	9.0

^a All amounts in parts per million (ppm).^b State standard of 20.0 ppm is used. Federal standard is 35.0 ppm.

Source: LSA Associates, Inc., 2003.

of approximately 0.9 percent per year. This growth is less than the 1.3 percent growth rate in the Bay Area. In addition, the proposed project is a mixed-use development. Therefore, the project will be moving residents closer to the Downtown employment opportunities, potentially reducing the vehicle miles traveled within the City. Although the VMT growth rate projected in the 2000 CAP is higher than the population growth rate, because the proposed project has the potential to minimize the VMT growth in the Downtown area, the project related rate of increase in VMT is considered to be equal to or lower than the rate of increase in population. Therefore, *Strategy 2000* is consistent with the Bay Area 2000 CAP.

c. Significant Air Quality Impacts. The following significant air quality impacts related to construction period emissions and operational regional emissions would result from implementation of the project.

Impact AIR-1: Construction period activities could generate significant dust, exhaust, and organic emissions. (S)

Construction activities such as excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive dust that would affect local air quality and impact nearby sensitive receptors.

Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-water-base paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

During construction, various diesel-powered vehicles and equipment would be in use. In 1998 the CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.⁵ High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truckstop) were identified as having the highest associated risk. *BAAQMD CEQA Guidelines* identify the following types of facilities as a potential for exposing sensitive receptors to high levels of diesel exhaust:

- Truck stop
- Warehouse/Distribution Center
- Large retail or industrial facility
- High volume transit center
- School with high levels of bus traffic
- High volume highway
- High volume arterial/roadway with high level of diesel traffic

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction related sources are mobile and transient in nature, and the bulk of the emission occurs within the project area at a substantial distance from nearby receptors. Because of its short duration, health risks from construction emissions of diesel particulate would be a less-than-significant impact.

Construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to general dust whenever soil moisture is low and particularly when the wind is blowing.

The effects of construction activities would be increased dustfall and locally elevated levels of particulates downwind of construction activity. Construction dust has the potential to create a nuisance at nearby properties or at previously completed portions of a project. In addition to nuisance effects, excess dustfall can increase maintenance and cleaning requirements and could adversely affect sensitive electronic devices.

Emissions of particulate matter or visible emissions are regulated by the BAAQMD under Regulation 6 "Particulate Matter and Visible Emissions." Specifically, visible particulate emissions are prohibited where the visible particulates are deposited on real property other than that of the person responsible for the emissions and cause annoyance.

The following mitigation measures include all feasible measures for construction emissions identified by the BAAQMD. According to the District's threshold of significance for construction impacts,

⁵California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.

implementation of the measures would reduce construction impacts of the revised project to a less-than-significant level.

Mitigation Measure AIR-1: Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

- (a) The Basic and Enhanced control measures recommended by the BAAQMD and listed in Table V.C-4 shall be implemented during construction of proposed projects.
- (b) Any temporary haul roads to soils stockpiles areas used during construction of projects shall be routed away from existing neighboring land uses. Any temporary haul roads shall be surfaced with gravel and regularly watered to control dust or treated with an appropriate dust suppressant.
- (c) Water sprays shall be utilized to control dust when material is being added or removed from soils stockpiles. If a soils stockpile is undisturbed for more than one week, it shall be treated with a dust suppressant or crusting agent to eliminate wind-blown dust generation.
- (d) All neighboring properties located within 500 feet of property lines of a construction site shall be provided with the name and phone number of a designated construction dust control coordinator who will respond to complaints within 24 hours by suspending dust-producing activities or providing additional personnel or equipment for dust control as deemed necessary. The phone number of the BAAQMD pollution complaints contact shall also be provided. The dust control coordinator shall be on-call during construction hours. The coordinator shall keep a log of complaints received and remedial actions taken in response. This log shall be made available to City staff upon its request. (LTS)

Impact AQ-2: Regional emissions of criteria air pollutants from new development would exceed BAAQMD thresholds. (S)

New development envisioned by *Strategy 2000* would emit criteria air pollutants from both *direct* and *indirect* sources. Direct sources consist of on-site combustion for space- and water-heating, fireplace use, manufacturing processes, and other minor sources. Indirect sources – by far the larger of the two sources – include all of the auto and truck traffic generated by the new development.

The URBEMIS2002 model was used to calculate emissions from all trips to or from the specific plan area. This analysis was based on project buildout and assumed a year 2005 vehicle population. Default values were used in the URBEMIS2002 model for trip generation inputs and trip lengths for the proposed land uses.

Daily emissions associated with project vehicle use are shown in Table V.C-5. Pollutants shown include carbon monoxide, reactive organic gases (ROG) and oxides of nitrogen (NO_x) (two precursors of ozone), and PM₁₀ (particulate matter, 10 microns in size). As shown, emissions associated with the proposed project would exceed the BAAQMD thresholds of significance for four criteria

Table V.C-4: Feasible Control Measures for Construction Emissions of PM₁₀

Basic Control Measures - The following controls should be implemented at all construction sites.				
<ul style="list-style-type: none"> Water all active construction areas at least twice daily. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. 				
Enhanced Control Measures - The following measures should be implemented at construction sites greater than 4 acres in area.				
<ul style="list-style-type: none"> All "Basic" control measures listed above. Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). Enclose, cover, water twice daily or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.) Limit traffic speeds on unpaved roads to 15 mph. Install sandbags or other erosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 				
Optional Control Measures - The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors or which for any other reason may warrant additional emissions reductions.				
<ul style="list-style-type: none"> Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. Limit the area subject to excavation, grading, and other construction activity at any one time. 				

Source: BAAQMD, 1999.

Table V.C-5: Regional Vehicular Emissions

	Emissions (pounds/day)			
	ROG	CO	NO _x	PM ₁₀
Project Emissions	1,931	20,781	2,614	1,405
BAAQMD Thresholds	80	550	80	80

Source: LSA Associates, Inc., 2003.

pollutants. In the case of a "project" under review that is as large in its scale as *Strategy 2000*, such an exceedance is not surprising.

The proposed project encourages urban infill development and provides for a mix of land uses that would promote non-auto travel. It would also be located in an area with good access to regional transit systems. The project would be also be consistent with the regional "Smart Growth" initiative that the BAAQMD (together with five other regional agencies) has recently implemented to encourage compact, in-fill development near public transit.

Strategy 2000 also explicitly includes or is consistent with measures that are recommended in the *BAAQMD CEQA Guidelines* for reducing vehicle trip generation and the resulting emissions. The following land use characteristics and programs from *Strategy 2000* would have a mitigatory effect: neighborhood-serving shops and services within or adjacent to residential development; transit facilities (e.g., bus bulbs/turnouts, benches, shelters); bicycle lanes and/or paths, connected to community-wide network; sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network; and secure and conveniently located bicycle and storage for residents.

The following multi-part mitigation measure is recommended to further reduce this impact.

Mitigation Measure AIR-2: To the extent permitted by law, at the time a specific development application is submitted, development projects within the City shall be required to implement Transportation Control Measures (TCMs) as recommended by the BAAQMD. Each measure listed below includes an estimate by the BAAQMD of its effectiveness at trip reduction.

- *Rideshare Measures:* Implement carpool/vanpool program (e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.) (Effectiveness 1 - 4 percent of work trips).
- *Transit Measures:*
 - (i) Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc. (Effectiveness 0.5 - 2 percent of all trips);
 - (ii) Design and locate buildings to facilitate transit access (e.g., locate building entrances near transit stops, eliminate building setbacks, etc.) (Effectiveness 0.1 - 0.5 percent of all trips).
- *Services Measures:*
 - (i) Provide on-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. (Effectiveness 0.5 - 5 percent of work trips);
 - (ii) Provide on-site child care, or contribute to off-site childcare within walking distance. (Effectiveness 0.1 - 1 percent of work trips).
- *Shuttle Measures:*
 - (i) Establish mid-day shuttle service from work site to food service establishments/commercial areas (Effectiveness 0.5 - 1.5 percent of work trips);
 - (ii) Provide shuttle service to transit stations/multimodal centers (Effectiveness 1 - 2 percent of work trips).
- *Parking Measures:*
 - (i) Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles (Effectiveness 0.5 - 1.5 percent of work trips);
 - (ii) Implement parking fees for single occupancy vehicle commuters (Effectiveness 2 - 20 percent of work trips);
 - (iii) Implement parking cash-out program for employees (i.e., non-driving employees receive transportation allowance equivalent to value of subsidized parking) (Effectiveness 2 - 20 percent of work trips).

- *Bicycle and Pedestrian Measures:*
 - (i) Provide secure, weather-protected bicycle parking for employees (Effectiveness 0.5 - 2 percent of work trips);
 - (ii) Provide safe, direct access for bicyclists to adjacent bicycle routes (Effectiveness 0.5 - 2 percent of work trips);
 - (iii) Provide showers and lockers for employees bicycling or walking to work (Effectiveness 0.5 - 2 percent of work trips);
 - (iv) Provide secure short-term bicycle parking for retail customers or non-commute trips (Effectiveness 1 - 2 percent of non-work trips);
 - (v) Provide direct, safe, attractive pedestrian access from Planning Area to transit stops and adjacent development (Effectiveness 0.5 - 1.5 percent of all trips).
- *Other Measures:*
 - (i) Implement compressed work week schedule (e.g., 4 days/40 hours, 9 days/80 hours) (Effectiveness 2 - 10 percent of work trips);
 - (ii) Implement home-based telecommuting program (Effectiveness 0.5 - 1.5 percent of work trips).

Implementation of the measures detailed above would help minimize this impact, but not reduce it to a less-than-significant level. (SU)

